We claim:

- 1. A combustion test sample for fire detectors comprising a mixture of pellets of the types of plastics normally found in the cargo compartment of an airplane.
- 2. A combustion test sample as in claim 1 further containing an internal heating element.
- 3. A combustion test sample as in claim 2 wherein said pellets are in a plurality of layers.
- 4. A combustion test sample as in claim 3 wherein said layers have different thicknesses.
- 5. A combustion test sample as in claim 4 wherein said pellets in each of said layers are fused together to form porous unitary masses.
- 6. A combustion test sample as in claim 5 wherein said porous unitary masses are fused together to form a single block.
- 7. A combustion test sample as in claim 6 wherein said heating element is sandwiched between adjoining layers of pellets.
- 8. A combustion test sample as in claim 7 comprising 2 layers of pellets, said top layer comprising a generally homogeneous mixture of about 22.7 parts by weight PVC and about 9.1 parts by weight each of PE, PS, Nylon, PBT, and PU and having a porosity of about 48% voids.
- 9. A combustion test sample as in claim 8 wherein said bottom layer comprises a generally homogeneous mixture of about 22.7 parts by weight PVC and about 9.1 parts by weight each of PE, PS, Nylon, PBT, and PU and having a porosity of about 22% voids.
- 10. A combustion test sample as in claim 9 wherein said bottom layer is twice as thick as said top layer.
- 11. The method of generating a desired atmosphere for testing the response of a fire detector which comprises providing a porous sample, providing a heating element within said sample, and energizing said heating element to cause said sample to release volatile thermal decomposition products to approximate smouldering.

- 12. The method of claim 11 further comprising constructing said sample of a mixture of the types of plastics normally found in the cargo compartment of an airplane.
- 13. The method of claim 12 further comprising placing a flammable liquid on said porous sample, providing an ignition source for said flammable liquid, and simultaneously energizing said ignition source and said heating element.
- 14. The method of claim 12 further comprising constructing said sample in a plurality of layers.
- 15. The method of claim 14 further comprising constructing said layers in different porosities.
- 16. The method of claim 15 further comprising constructing said layers in different thicknesses.
- 17. The method of claim 16 further comprising placing said heating element in the interface between two of said layers.